# Gas Meter Reading and Consumption Calculation Program

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## Introduction

The Gas Meter Reading and Consumption Calculation Program is a Python program that allows users to read their gas meter and calculate the gas consumption based on the current and previous readings. The program provides options for entering meter readings, displaying consumption values, and generating a statistical plot of the consumption data.

## Features

1. \*\*Meter Reading\*\*: Users can enter the gas meter reading, specifying whether they are a new or existing subscriber. The program calculates the gas consumption based on the difference between the current and previous readings.

2. \*\*Display Consumption\*\*: Users can view the recorded gas consumption values.

3. \*\*Data Deletion\*\*: Users have the option to delete a specific consumption value from the recorded data.

4. \*\*Statistical Plot\*\*: The program generates a line plot to visualize the gas consumption data over time.

## Prerequisites

To run the Gas Meter Reading and Consumption Calculation Program, ensure that the following dependencies are installed:

- Python 3.x

- matplotlib library (install using `pip install matplotlib`)

## Implementation

The program is implemented in Python and utilizes the `matplotlib` library for generating statistical plots.

The main components of the program are as follows:

1. \*\*Username\*\*: The program utilizes the `getpass` module to retrieve the username of the user running the program.

2. \*\*Meter Reading Function\*\*: The `Count` function reads the gas meter and calculates the gas consumption based on the current and previous readings. The function handles cases for new and existing subscribers, checks for valid input, and appends the calculated consumption to the `counts\_list`.

3. \*\*Display Consumption Function\*\*: The `show\_counts` function displays the recorded gas consumption values. It also provides the option to delete a specific value from the recorded data if desired.

4. \*\*Statistical Plot Function\*\*: The `plot\_counts` function generates a line plot using `matplotlib` to visualize the gas consumption data over time. The x-axis represents the readings (ن) and the y-axis represents the consumption values.

5. \*\*Main Program\*\*: The main program provides a user-friendly menu for interacting with the program. Users can choose options to enter meter readings, display consumption values, generate a statistical plot, or exit the program.

## Instructions

1. Run the program in a Python environment that meets the prerequisites mentioned above.

2. Enter the requested information and choose options from the menu as prompted.

3. Follow the on-screen instructions to perform the desired operations.

4. Exit the program by selecting the corresponding option from the menu.

## Example Usage

Here is an example scenario demonstrating the usage of the Gas Meter Reading and Consumption Calculation Program:

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3. الخروج.

4. عمل رسم إحصائي

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2. عرض الإستهلاك.

3. الخروج.

4. عمل رسم إحصائي

الإحتيار هو: 4

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A statistical plot of the gas consumption data will be displayed.

## Conclusion

The Gas Meter Reading and Consumption Calculation Program provides a convenient way for users to read their gas meter, calculate consumption, and visualize the consumption data. By following the instructions and utilizing the program's features, users can efficiently manage and monitor their gas usage over time.